Claims

1. A random comb polymer, obtainable by free-radical copolymerization of a vinylic poly(alkylene oxide) compound (A) of the general formula (I)

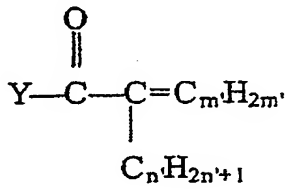
$$R^1\text{-}O\text{-}(C_mH_{2m}O)_{n-1}C_mH_{2m}\text{-}Z \qquad (I)$$

where

R^1 = hydrogen, a C_1-C_{20}-alkyl radical, a cycloaliphatic C_5-C_{12}-cycloalkyl radical, a substituted or unsubstituted C_6-C_{14}-aryl radical,

m = 2 to 4,

n = 1 to 250,

Z = 

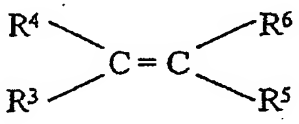
Y = O or NR^2,

R^2 = hydrogen, a C_{1-12}-alkyl radical, a C_6-C_{14}-aryl radical, $-C_mH_{2m}-(O-C_mH_{2m})_{n-1}OR^1$,

m' = 1 to 4 and

n' = 0 to 2,

with an ethylenically unsaturated monomer compound (B) of the general formula (II),



(II)

where

R^3 = H, CH_3, COOH or a salt thereof, $COOR^7$ or $CONR^7R^7$,

R^4 = H, a substituted or unsubstituted C_6-C_{14}-aryl radical,

R^5 = H, CH_3, COOH or a salt thereof, $COOR^7$, $CONR^7R^7$, a substituted or unsubstituted aryl radical or OR^8, PO_3H_2, SO_3H, CONH-R^9,

R^6 = H, CH_3 or CH_3COOR^7,

R^7 = H, C_1-C_{12}-alkyl, C_1-C_{12}-hydroxyalkyl, C_1-C_{12}-alkylphosphate or -phosphonate or a salt thereof, C_1-C_{12}-alkylsulfate or -sulfonate or a salt thereof, $-C_mH_{2m}(O-C_mH_{2m})_{n-1}OR^1$,

R^8 = acetyl and

R^9 = C_1-C_{12}-alkylphosphate or -phosphonate or a salt thereof, C_1-C_{12}-alkylsulfate or -sulfonate or a salt thereof,

R^3 and R^5 together form an -O-CO-O- group,

by the "catalytical chain transfer (CCT)" method.

2. The comb polymer as claimed in claim 1, characterized in that the aryl radicals R^1 are substituted by hydroxyl, carboxyl or/and sulfonic acid groups.

3. The comb polymer as claimed in claim 1 or 2, characterized in that, in the formula (I), m = 2 or 3 and n = 5 to 250.

4. The comb polymer as claimed in any of claims 1 to 3, characterized in that, in the formula (I), m'=1 and n'=0 or 1.

5. The comb polymer as claimed in any of claims 1 to 4, characterized in that, in the formula (II), R^3 and R^4 = H, R^6 = H, CH_3 and R^5 = $COOR^7$, PO_3H_2 or $CONH-R^9-SO_3H$.

6. The comb polymer as claimed in any of claims 1 to 5, characterized in that, in the formula (II), R^3 and R^4 = H, R^6 = CH_3, R^5 = COOH or a salt thereof or $COOR^7$ and R^7 = C_1-C_6-hydroxyalkyl.

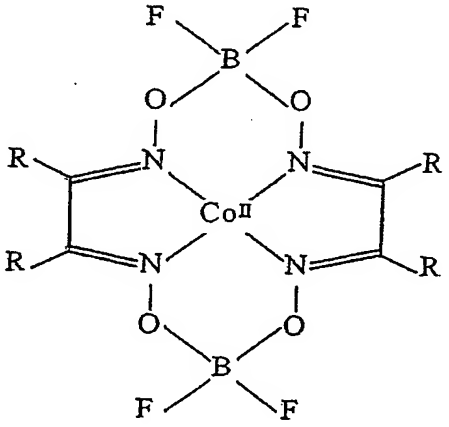
7. The comb polymer as claimed in any of claims 1 to 6, characterized in that R^5 is a carboxylic acid salt selected from among alkali metal, alkaline

earth metal and ammonium salts.

8. The comb polymer as claimed in any of claims 1 to 7, characterized in that the molar ratios of the vinylic poly(alkylene oxide) compound (A) to the ethylenically unsaturated monomer compound (B) have been set to from 1:0.01 to 1:100, preferably from 1:0.1 to 1:50.

9. A process for preparing comb polymers as claimed in any of claims 1 to 8, characterized in that the vinylic poly(alkylene oxide) compound (A) and the ethylenically unsaturated monomer compound (B) are polymerized by free-radical polymerization in the presence of CCT catalysts and initiators at from 30 to 150°C.

10. The process as claimed in claim 8, characterized in that a cobalt complex of the general formula (III),



(III)

where R = CH_3, is used as CCT catalyst.

11. The process as claimed in claim 9 or 10, characterized in that azo initiators or redox systems are used as initiators.

12. The process as claimed in any of claims 9 to 11,

characterized in that the polymerization is carried out in the temperature range from 40 to 100°C.

13. The use of the comb polymers as claimed in any of claims 1 to 8 as dispersants for aqueous suspensions of solids.

14. The use as claimed in claim 13, characterized in that the comb polymers are used in an amount of from 0.01 to 5% by weight, based on the suspension of solids.

15. The use as claimed in claim 13 or 14, characterized in that the suspension of solids comprises hydraulic binders based on cement, lime, plaster of Paris and anhydrite.

16. The use as claimed in any of claims 13 to 15, characterized in that the suspension of solids comprises inorganic particles selected from the group consisting of ground rock, ground silicate, chalk, clays, porcelain slips, talc, pigments and carbon black.